

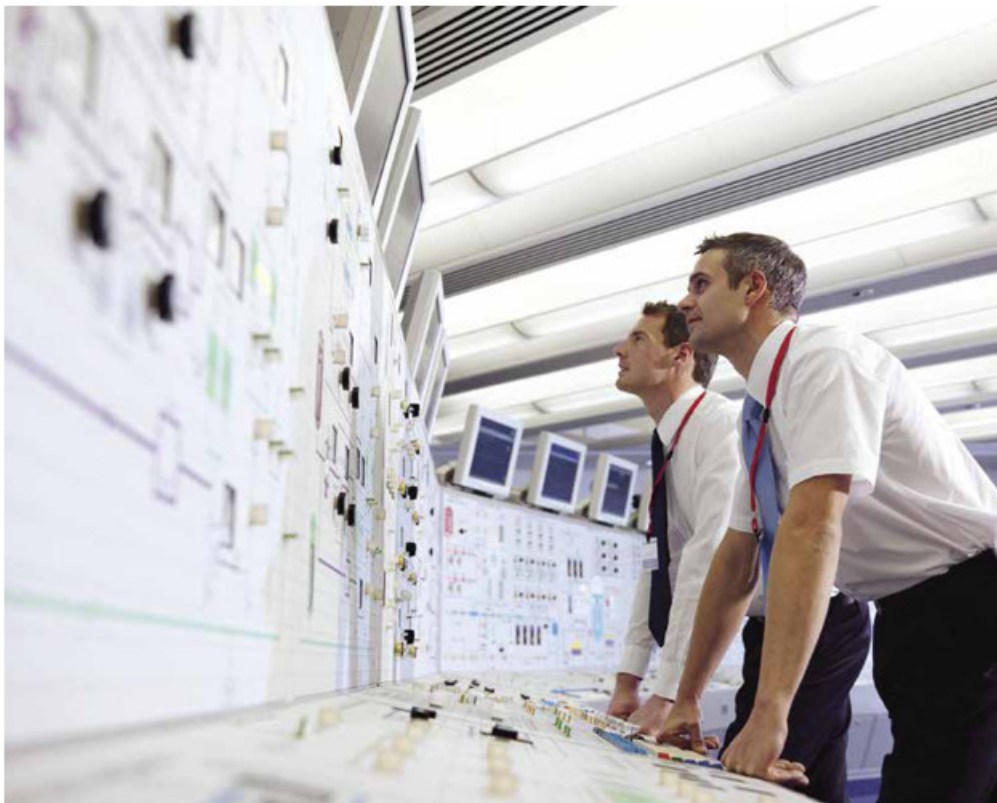


legrand CS141 UPS Management Systems User Guide

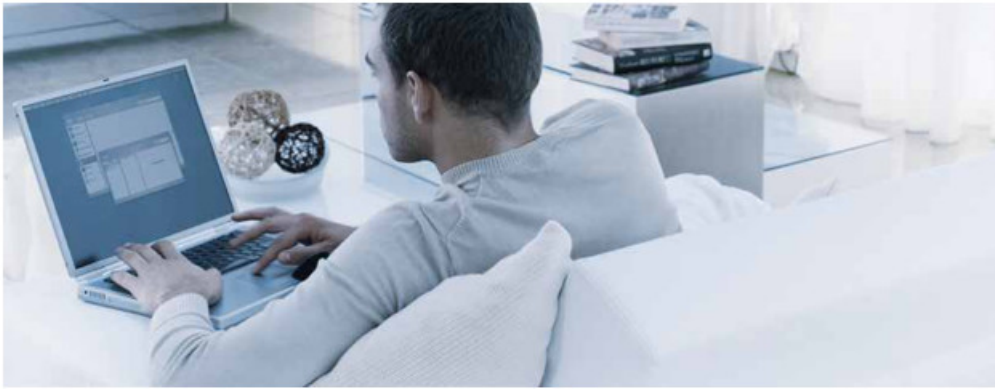
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UPS Management systems
UPS SUPERVISION
AND CONTROL SYSTEMS



THE GLOBAL SPECIALIST
IN ELECTRICAL AND DIGITAL BUILDING INFRASTRUCTURES



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UPS MANAGEMENT GUIDE

On its own, a UPS is unable to guarantee total protection of the data processing systems it powers. This is due to several factors, amongst which:

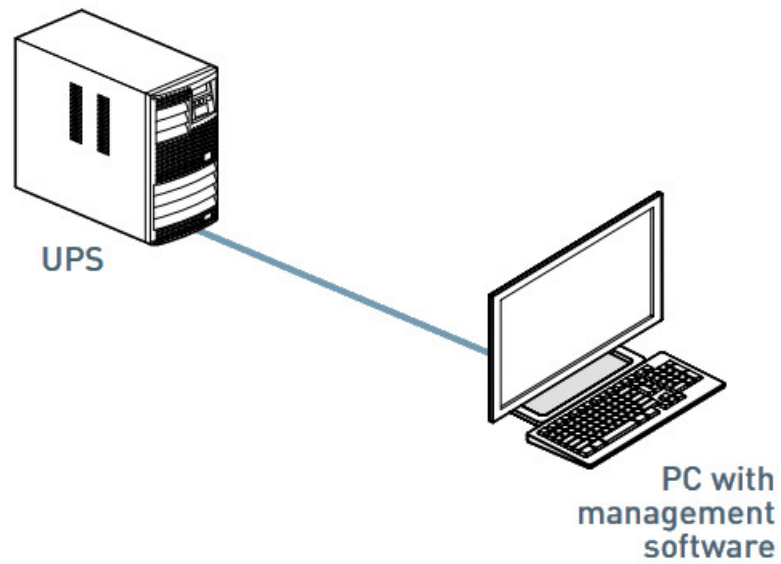
- Batteries do not have unlimited autonomy
- Unexpected load connections, such as stoves and vacuum cleaners, can cause overloads which annul the protection provided by the UPS.
- Installation in unmanned areas such as EDP rooms and basements or round-the-clock operations can make alarm reception difficult or impossible. This consequently put critical equipment at risk.

Moreover, since the systems can be extremely costly to repair, also owing to the time relevant downtime, it is easy to understand the importance to equip a UPS with a supervision system able to inform the user of the imminent danger and automatically proceed with a series of actions to protect the data and the operating systems.

Legrand offers 2 solutions for the UPS supervision according to the type of installation and the management method:

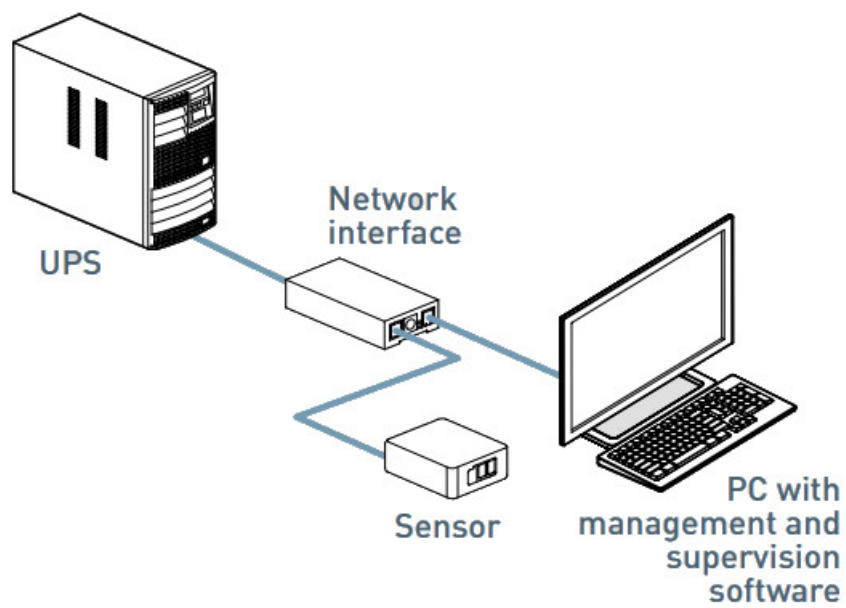
“SOFTWARE” SOLUTION

The Management is performed by the software installed on the PC or server to protect. This solution is recommended for small installations where the UPS is installed close to PC or server.



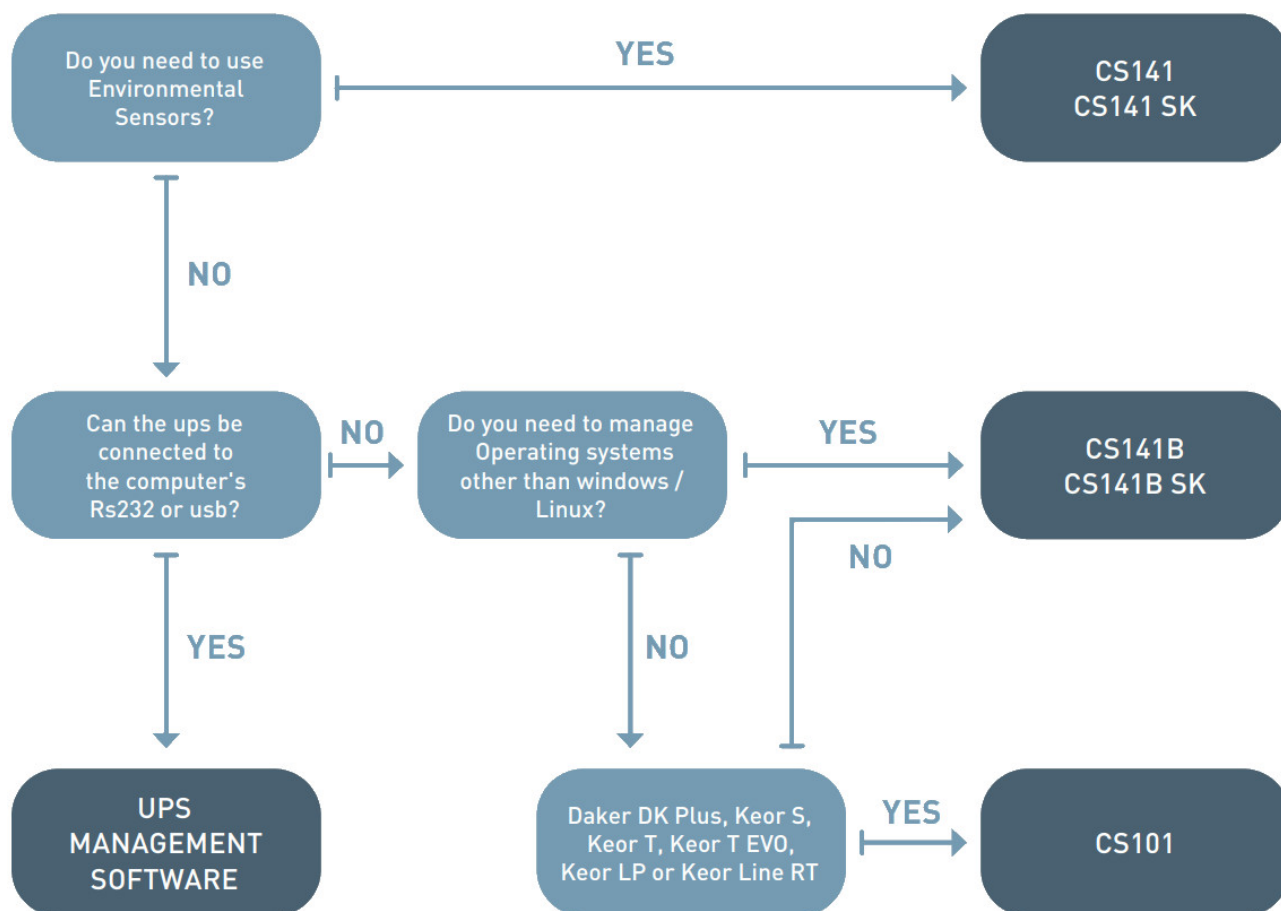
“HARDWARE + SOFTWARE” SOLUTION

The System is made by a set of communication accessories and software allowing to perform more extended supervision, direct or remotely by INTERNET.



SELECTION GUIDE

The following diagram shows how is possible to choose the best configuration for your needs:



MANAGEMENT SOFTWARE

The management software provides two main functions:

- UPS management and control: UPS Management Software;
- UPS supervision (monitoring and remote control): RCCMD, UNMS.



UPS MANAGEMENT SOFTWARE

Free download from www.ups.legrand.com.

It comprises a group of applications that permanently monitor UPS operation and protect the operating systems of the computers powered by the UPS itself.

The client/server structure makes it extremely flexible, efficient, simple to use and "light" when it comes to required system resources.

Compatible Windows 2000 and more recent, Linux (64 bit) and Mac.

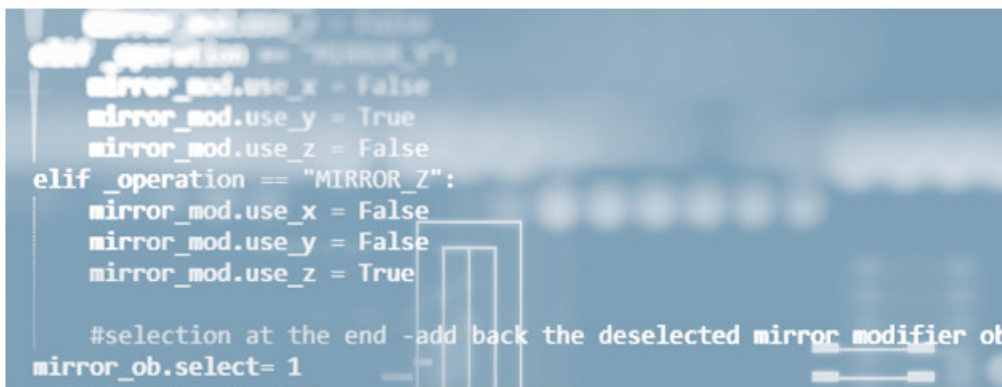
The upgrades can be downloaded from the website www.ups.legrand.com. UPS Management

UPS Management Software includes the following main module:

UPSMAN:

Server module for UPS management through the RS232 link.

This module can control numerous events (power failure, overload, bypass, internal faults, etc..) and is able to carry out lots of actions for each one (data registration in the log file, transmission of pop-up messages, e-mail transmission, program execution, local and remote shutdown, etc...), also at different times.



SUPERVISION SOFTWARE

(MONITORING AND CONTROL)

RCCMD

This software enables a computer to receive and execute, via the TCP/IP protocol, the following remote commands transmitted by the UPS management systems:

- Shutdown of the operating system;
- Display of pop-up messages;
- Execution of customized script (.COM, .EXE, .BAT, .CMD) with the relative options.

All the commands received are recorded in a log file.

Execution of these commands depends on an authorization control: the commands are only accepted if the UPS that transmitted them is part of an authorization list.

A “redundancy” list can be created, i.e. a command will only be executed if it has been transmitted by several UPS (e.g. to shutdown computers with redundant powering on two or more UPS).

The software is compatible with 99% of the operating systems currently available on the market (including virtualization systems like VMware) and is also available for different types of architecture (e.g. Intel, PowerPC, Alpha processors).

Compatible with: UPS Management Software, CS141 network interface (all models).



UNMS

UNMS (UPS Network Management System) is a WEB based application that can continuously monitor the status of all the UPS installed in one or more locations by means of the UPS management systems (network interface, UPS Management system, SNMP protocol V2) and the TCP/IP protocol.

All the alarm signals generated by the various UPS are received by the monitoring station.

That allows to achieve an immediate and thorough diagnosis of the problem and allow the technical assistance service to act urgently if needed.

The operating status of each UPS is represented by a traffic light icon. In case of anomaly, the icon of the UPS in the alarm status changes colour, depending on the seriousness of the fault.

The control program sends pop-up messages, e-mail and runs customized programs. The monitoring function of the UPS concerned can be accessed with an Internet browser and a simple click on the mouse.

The SNMP protocol's support allows this application to be used with different brands of UPS, as long as they are compatible with the MIB RFC 1628 specifications.

The system also allows the graphic interface to be customized, memorizing of all alarms received in a database for research purposes and can display graphs showing the trend of the main operating parameters of the UPS.

The basic version is free of charge and it allows to manage up to 25 UPS at the same time.

UNMS is available for Windows 7 and more recent.



COMMUNICATION AND MANAGEMENT ACCESSORIES

The communication accessories can be classified in:

- Network interface (Standard, Professional and Industrial)
- Sensors for environmental and mechanical monitoring



NETWORK INTERFACES

They are special network devices designed to autonomously manage UPS.

External software is not required: a 32-bit processor resides in the board along with an operating system of the "UNIX Embedded" type which is able to continuously monitor the operation of the UPS, handle lots of events (power failure, overload, bypass, faults,...).

The network interfaces are available in external and internal version. The internal version can be installed in a dedicated slot inside the UPS.

The Professional and Industrial versions have programmable digital contacts and additional RS232 / RS485 communication ports. All CS141 network interfaces include an RCCMD license for executing commands on additional PC.

The firmware can be upgraded using specific software package available for free at www.ups.legrand.com.

Main functions :

- Event log with date and time;
- Memorizing the trend of the main operating data, complete with date and time;
- E-mail transmission;
- Accomplishment of scheduled actions;
- Displaying pop-up messages, shutdown and customized commands on remote computers;
- Transmission of SNMP trap messages;
- Turning the UPS off and on;
- Transmitting Wake On LAN (WOL) signals;
- Compatible with SNMP protocol and the main types of operating software (HP Open View, IBM Tivoli, etc...);
- Data and configuration display via the Internet browser (Internet Explorer, Mozilla Firefox, Opera, etc...) or Telnet;
- 10/100Mbit Base-T Ethernet link (half-duplex and full duplex) with self-recognition function;
- DHCP Function.

```
elif_operation == "MIRROR_X":
    mirror_mod.use_x = False
    mirror_mod.use_y = True
    mirror_mod.use_z = False
elif_operation == "MIRROR_Z":
    mirror_mod.use_x = False
    mirror_mod.use_y = False
    mirror_mod.use_z = True

#selection at the end -add back the deselected mirror modifier ob
mirror_ob.select= 1
```



SENSORS

The range consists of two different types of sensors, according to the type of connection to the UPS.

Some sensors are available for the direct connection to the CS141 network interfaces while others must be connected to the SENSOR MANAGER II.

The available types of sensors are:

FOR NETWORK INTERFACE

- temperature sensor
- temperature and humidity sensor

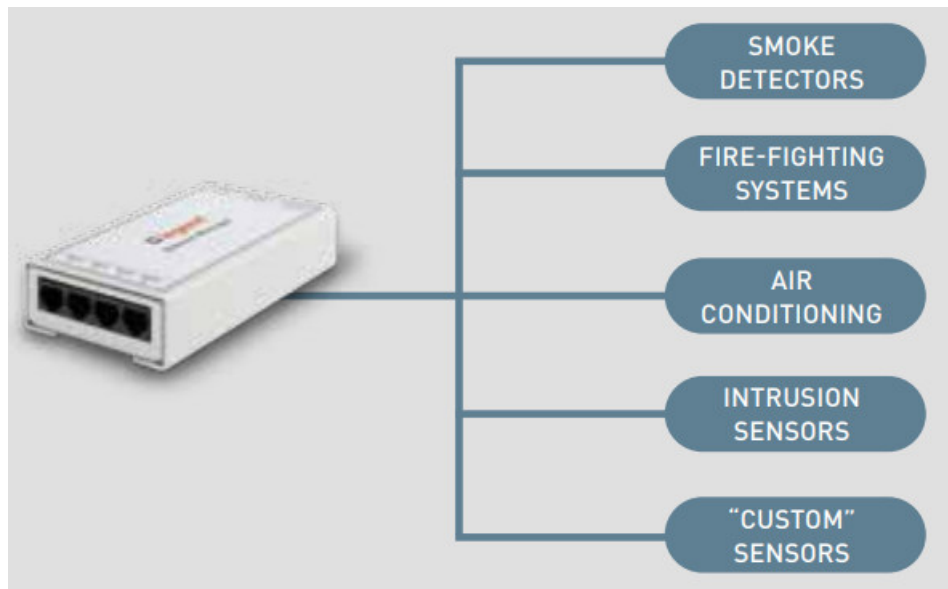
FOR SENSOR MANAGER II

- temperature sensor

- temperature and humidity sensor
- reed switch and magnet sensor
- flashing illuminated signal.

The Sensor Manager II is a device that allows the connection of several types of sensors to the UPS. It is able to manage up to 8 analog inputs, 4 digital inputs and 4 digital outputs.

Thanks to the configuration functions “Scale” and “Off set “it can be used with any analog setup.



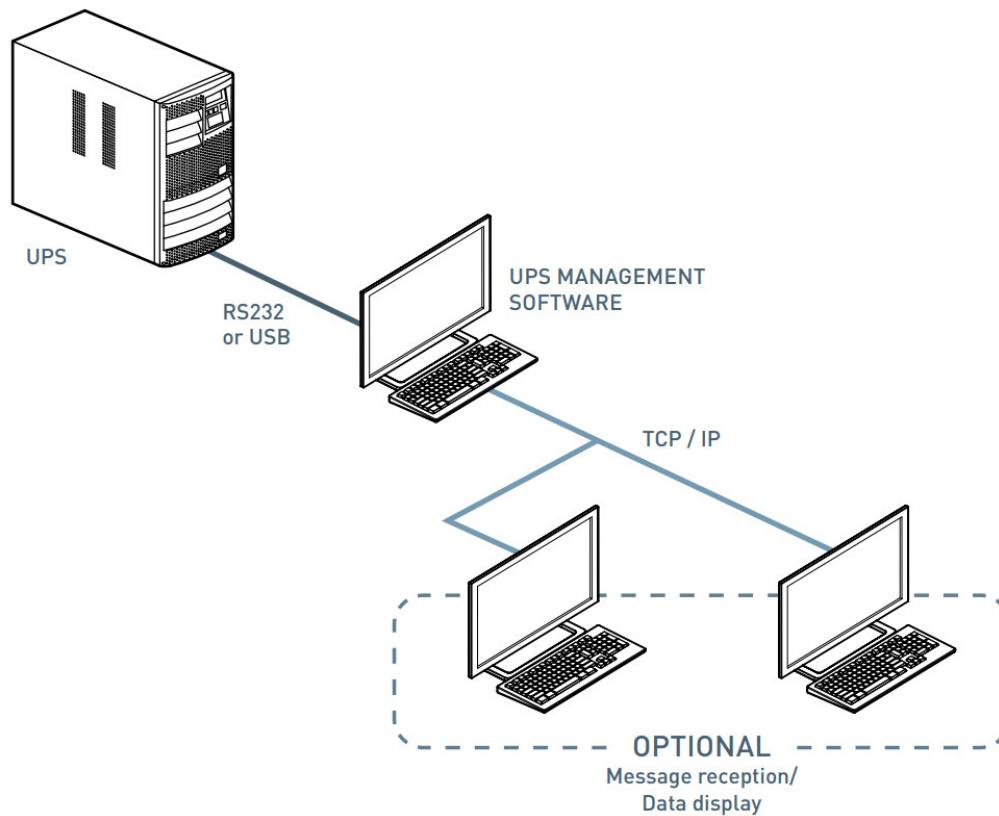
UPS MANAGEMENT TYPES

LOCAL PROTECTION

To protect a single computer (server or workstation) and its relative peripherals, it is enough to use an RS232 or USB connection and install the operating software in the system that must be protected.

If the computer is linked to an IP network, it is possible to receive alarm signals from the UPS as pop-up and e-mail messages, while the operating data can be graphically displayed via specific monitoring programs.

The advantage of this type of management is the low cost of the implementation, but the UPS must be positioned near the system to be protected.



Available products for this type of system:

– UPS Management Software (free download on www.ups.legrand.com)

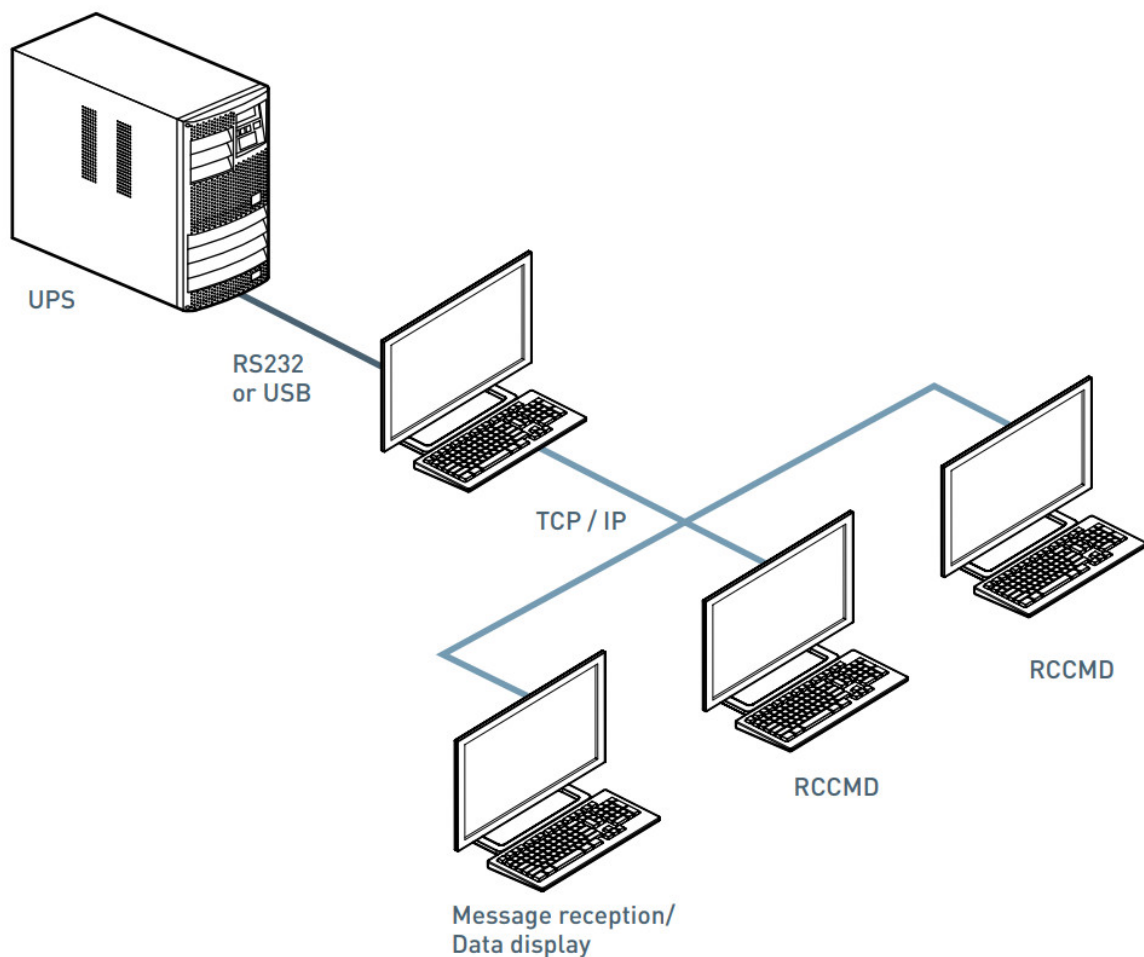


EXTENSION OF THE LOCAL PROTECTION

In case of several computers to manage, the previously described solution can be used with a special software “agent” installed on the other computers.

This special software will then receive and run the commands transmitted by the computer interfaced with the UPS.

Here again, the implementation costs are very low, but the management system is completely inhibited when the computer interfaced with the UPS is shutdown (fault, maintenance, upgrading, etc...). If this happens, it will no longer be able to receive the alarm signals and will endanger the remaining computers.

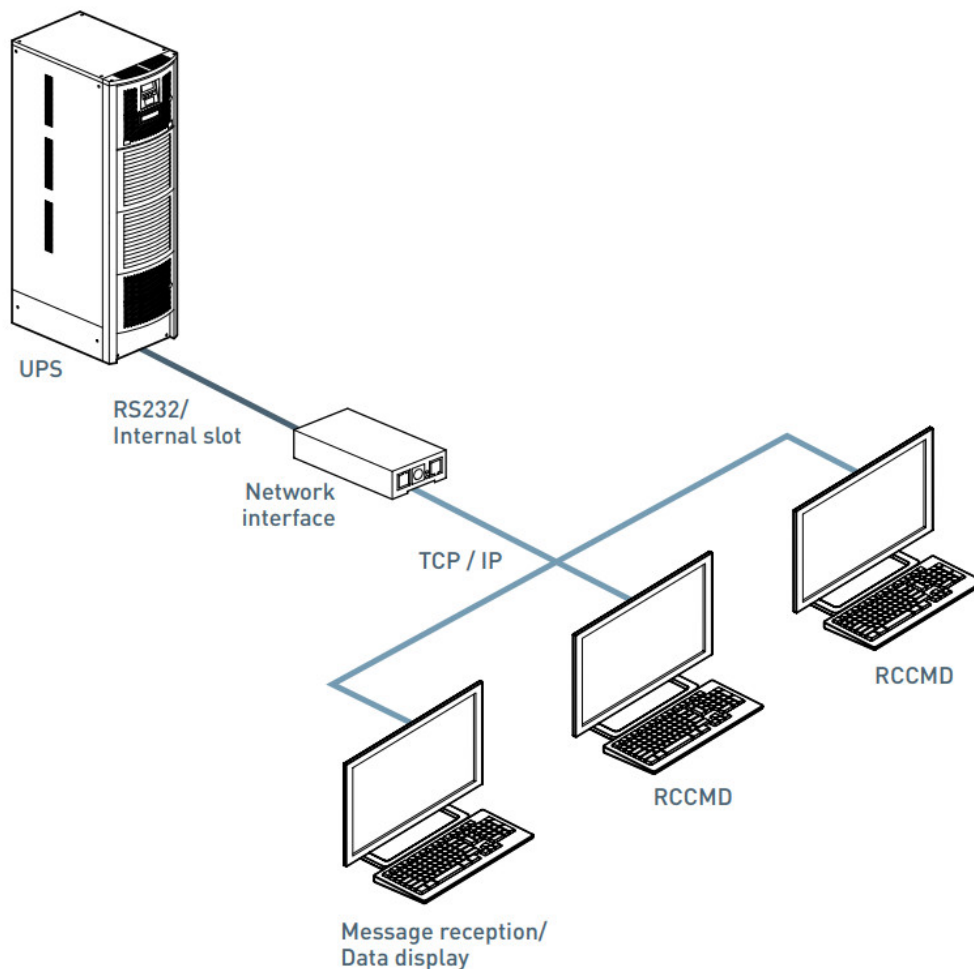


UPS MANAGEMENT TYPES

IP NETWORK INTEGRATION

For this type of installation, the UPS must be connected to a special network interface on which the management software was installed. The network board is then connected to the IP network. Since the UPS is directly linked to the UPS network, its management system can send e-mail and pop-up messages, shutdown and restart the computers again. Protection for the various computers is guaranteed by equipping them with agent software that receives commands from the network interface of the UPS. There are lots of advantages with this solution:

- The UPS can even be installed at a distance from the systems it must protect;
- The entire management no longer depends on one single computer, effectively guaranteeing that all the devices connected are protected;
- The data can be displayed via any WEB browser without need of dedicated software.



Products for this type of system:

- any CS141 network interface + n.1 RCCMD licence
- CS101 network interface



MANAGEMENT OF SEVERAL UPS

This solution requires a software application that continuously monitors a high number of UPS installed either locally or at remote locations.

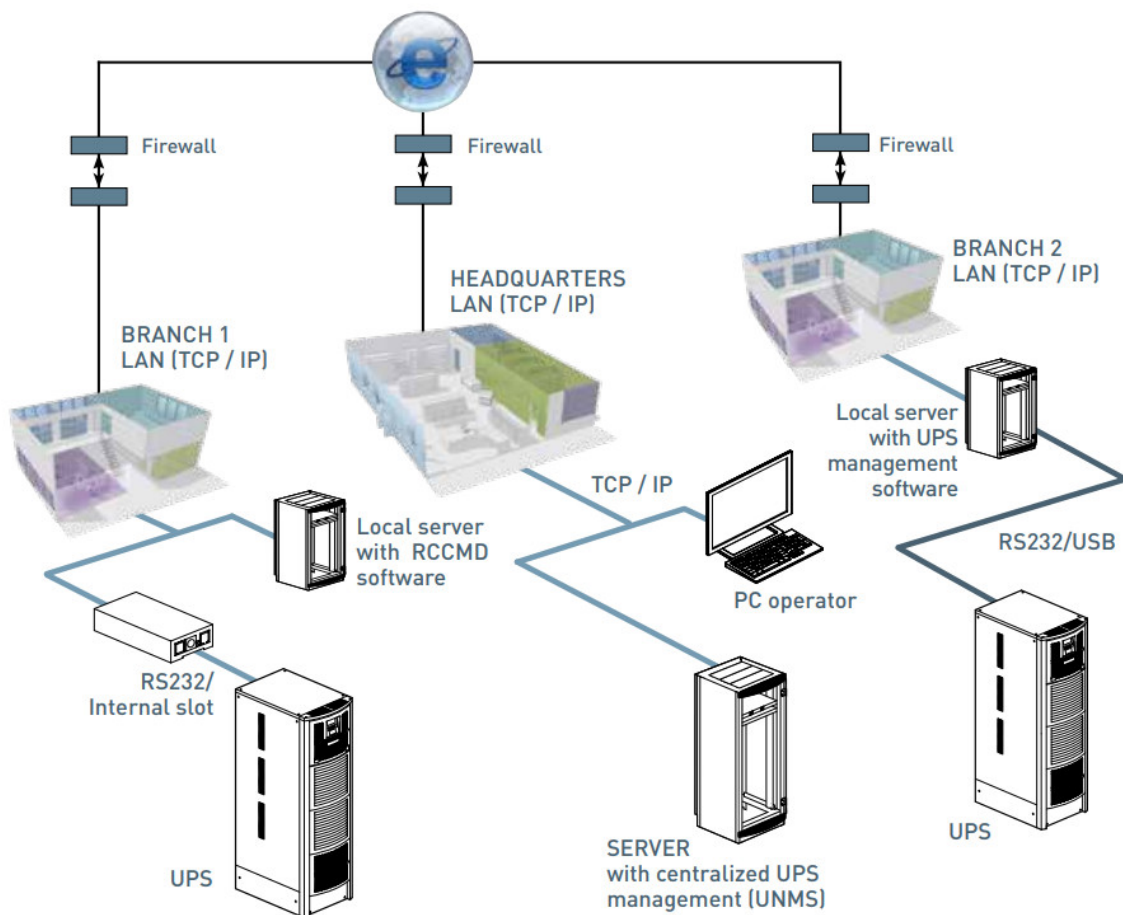
All the alarms generated by the UPS through their respective management systems are received, via the IP network, by this application, which memorizes them in a database and transmits a series of e-mail and pop-up messages to the operators. They are able to identify rapidly the UPS that generated the alarm (via a web browser) and to make a complete and efficient diagnosis.

A Bank is a typical example of how this application can be used:

- Each branch has a UPS monitored by one of the previously described management systems, which controls and protects the local network;
- The various different local networks are linked to each other permanently;
- The monitoring station that continuously controls all the UPS is installed in the headquarters.

The advantage of this solution is the standard monitoring system which allows to manage UPS without having to

know their IP address.



When monitoring with UNMS software, each UPS must be interfaced with:

- UPS Management Software
- Any network interface that supports the SNMP protocol



ENVIRONMENTAL MONITORING

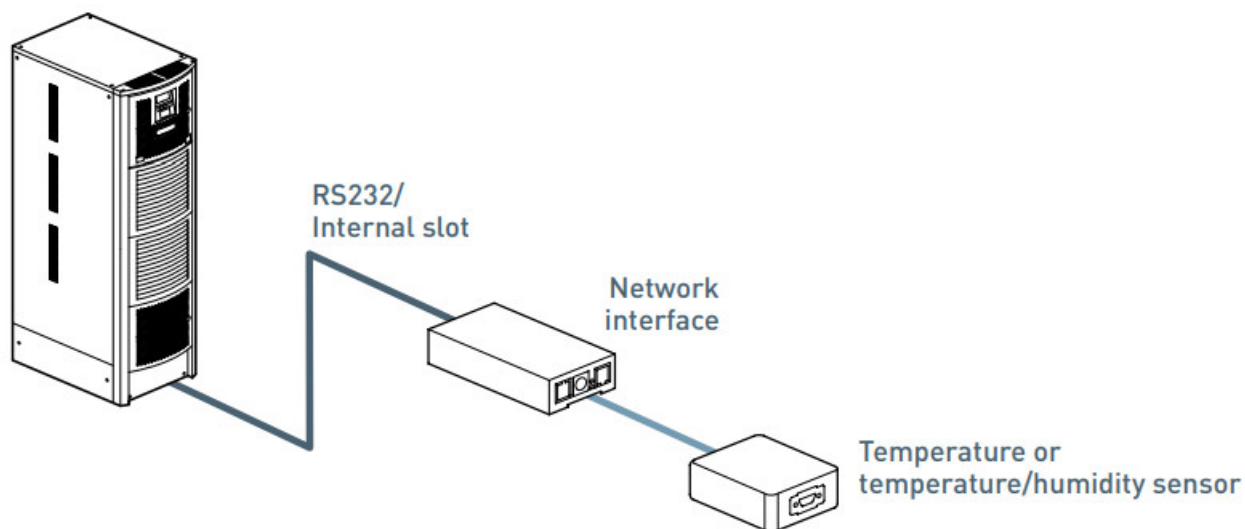
There are applications which require both UPS and environmental monitoring.

CS141 / CS141 SK network interface allow to monitor temperature and humidity using special sensors.

Within environmental monitoring is also possible to set threshold values and program relevant job to execute as: sending e-mail, popup message, remote computer command, shutdown, etc.

For installations with more than one sensor, the Sensor Manager, installed between the network interface and the different sensors, allows connection of up to 8 units.

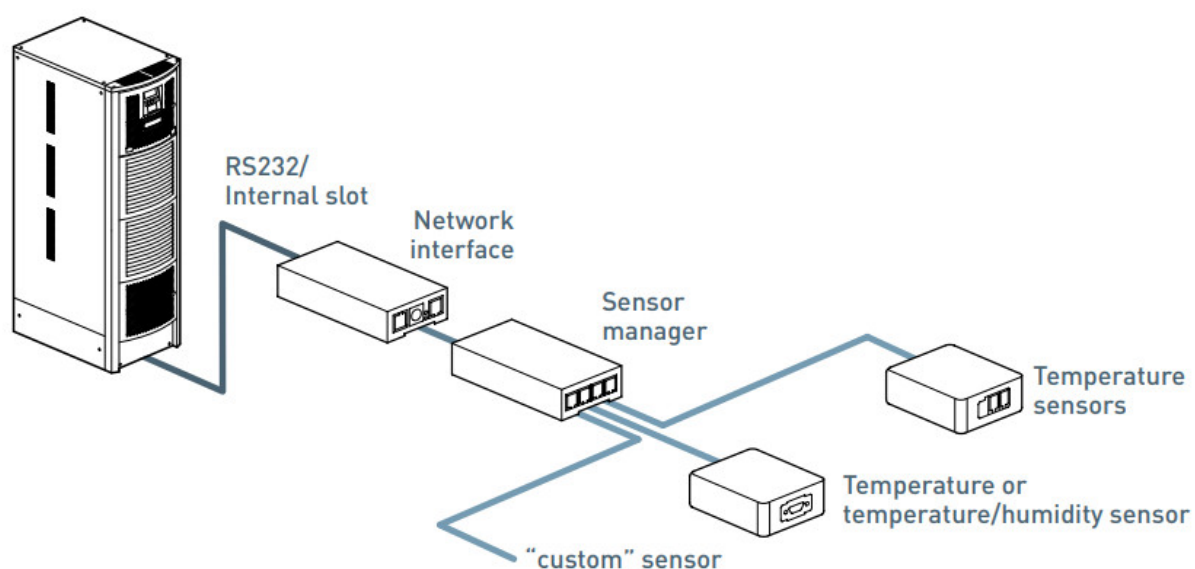
MONITORING OF ONE SINGLE SENSOR



Available products for this type of system:

- Professional network interface
- Sensor Cat. No 3 108 97 or 3 108 98

MONITORING OF SEVERAL SENSORS

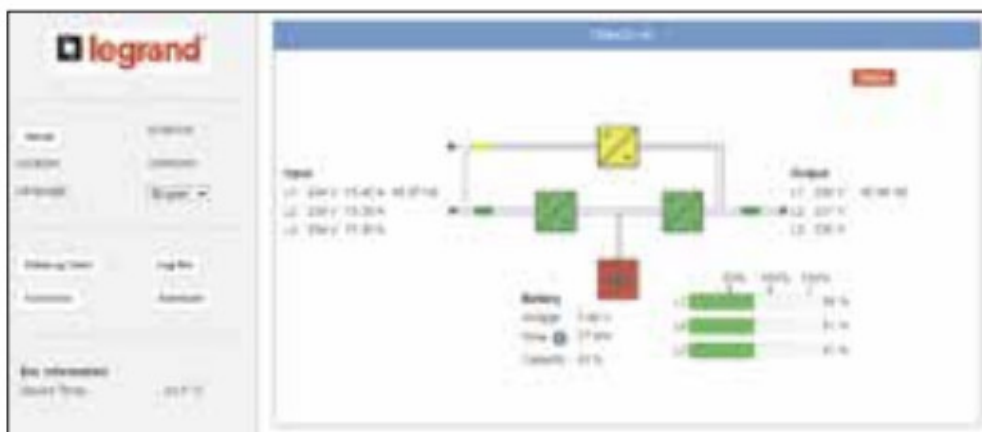


Available products for this type of system:

- professional network interfaces
- Sensor manager II Cat. No 3 108 99
- Sensor Cat. No 3 109 00
- Sensor Cat. No 3 109 01
- "custom" sensor

Accessories

Management software

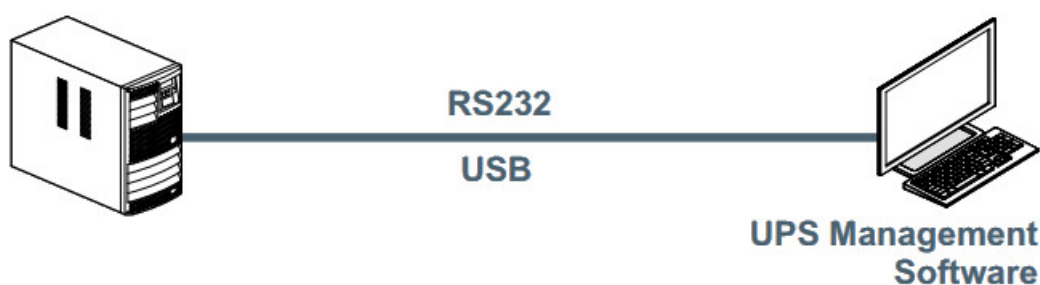


Pack	Cat. Nos	Software Description
1	free download	UPS Management Software Set of applications for real-time control of the operation of the UPS and to ensure the integrity of the systems on the computers supplied by this UPS. Requires the addition of an agent for executing commands on remote computers (RCCMD).
1	free download	RCCMD Software enabling a computer to receive and execute, using the TCP/IP protocol, all the remote commands sent by the management systems of the UPS. An RCCMD licence is necessary for each computer to be controlled.
1	free download	UNMS "WEB based" application capable of real-time supervision of the status of all UPS, via the management systems of the UPS and the TCP/IP protocol.
1	3 108 92	UNMS UNMS licence for 50 UPS
1	3 108 93	UNMS UNMS licence for 150 UPS

Examples of types of management and communication that can be created with software and hardware.

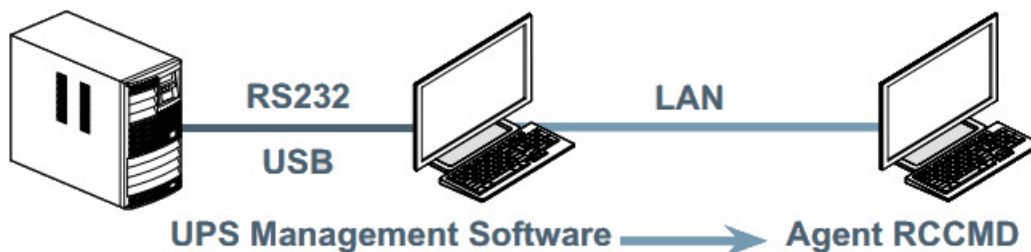
Local protection

Protects one station only (PC or server) and must be installed at a distance of less than 12 metres (RS232) or 5 metres (USB)



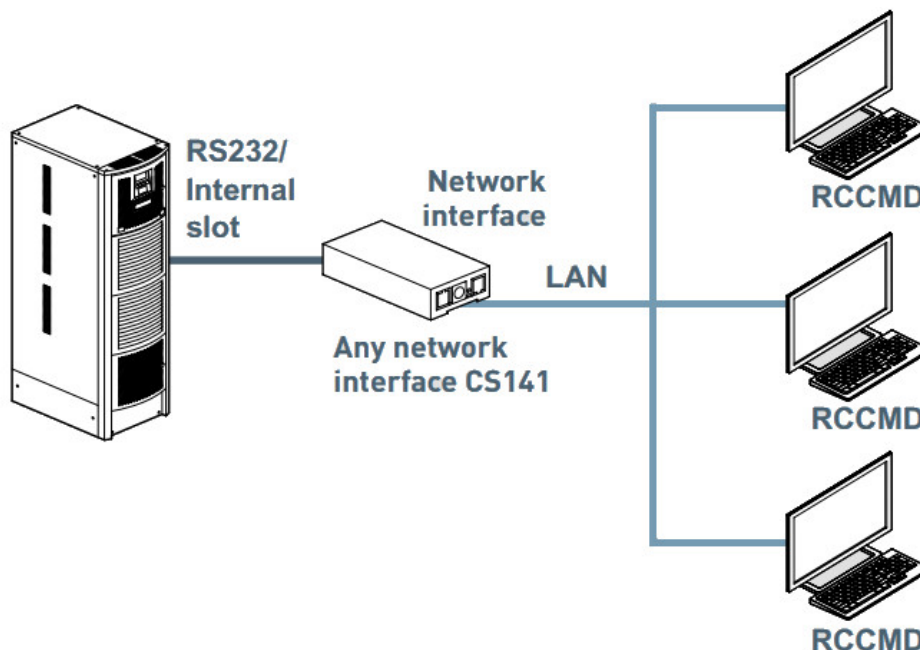
Extended local protection

Protects multiple stations (PC or server) but all must be dependent on the COMPUTER that controls the UPS.



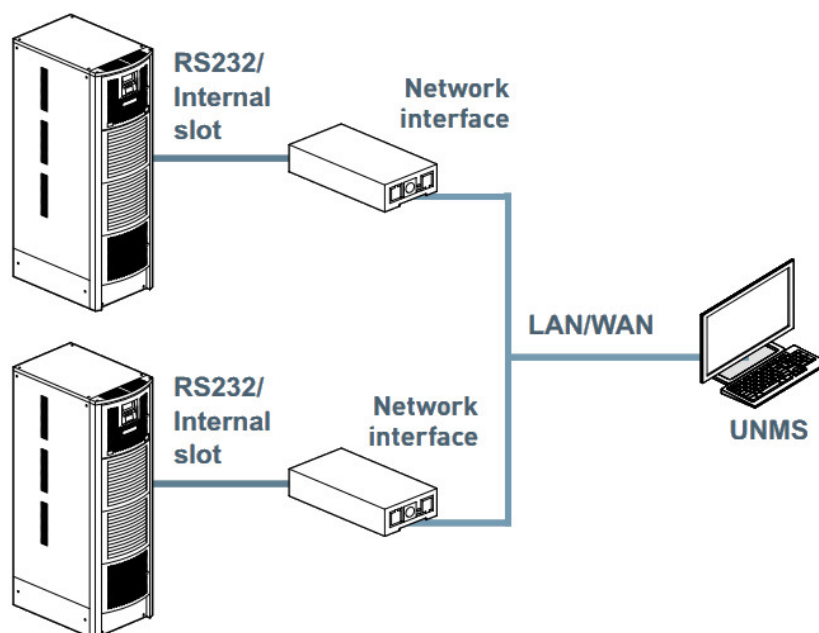
Protection via TCP/IP network

Enables control of all the stations that can communicate with the network interface. The management of the system can be supervised by all licensed users.



Centralized protection

Using the UNMS supervision software, it is possible to control all the UPS connected to a TCP/IP network via any network interface that supports SNMP v1 or v2 protocols.



Network interfaces



3 109 33



3 109 32



3 109 34



3 109 30



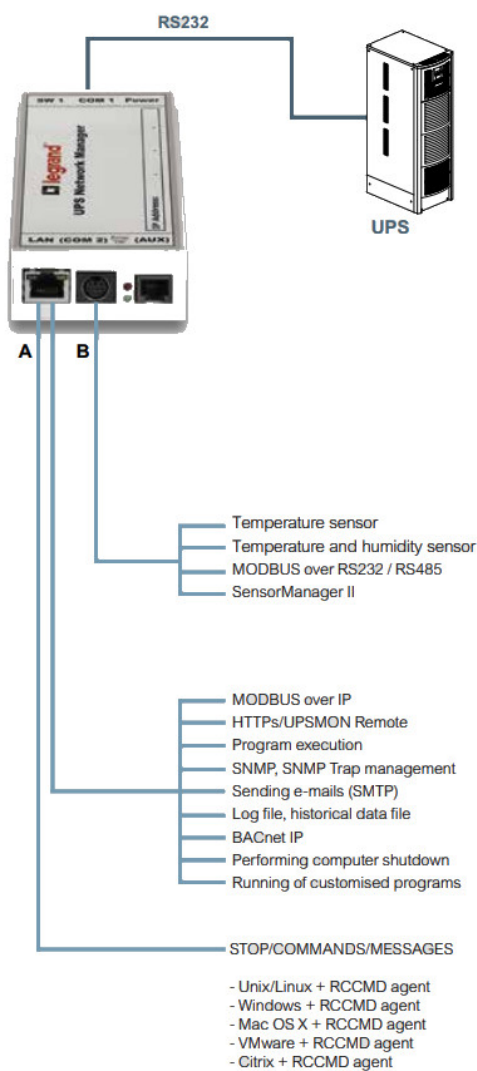
3 109 35



3 109 38

Pack	Cat. Nos	Network interface CS141
1		<p>Network interfaces for UPS management do not require external software; in fact, they are equipped with their own proprietary operating system which is able to continuously control the UPS operations and handle multiple events (power failure, overload, bypass, anomaly, etc.) and consequently to carry out a series of actions, such as, for instance:</p> <ul style="list-style-type: none"> – Saving of event logs complete with date and time – Saving of main operating data trends complete with date and time – Sending of emails – Performance of scheduled actions – Display of pop-up messages, shutdown operations and custom commands on remote computers (it is necessary that the RCCMD software agent is installed on these computers) – Switching ON and OFF the UPS – Sending of “Wake on LAN (WOL) ” signals – SNMP protocol support – Sending of SNMP trap messages – Data display and configuration via internet browser – Firmware downloadable free of charge from the Internet – 10/100Mbit Base-T Ethernet connection (half-duplex and full-duplex) with self-recognition function – DHCP function – No. 1 RCCMD license included Available in both internal and external versions, the internal version is housed in a dedicated UPS slot. The professional versions have an additional RS232 communication port. The industrial versions have an additional RS485 communication port.
1	3 109 30	CS141 SK Professional network interface, internal version (slot)
1	3 109 31	CS141B SK Standard network interface, internal version (slot)
1	3 109 32	CS141 Professional network interface, external version
1	3 109 33	CS141B Standard network interface, external version
1	3 109 34	CS141M Industrial network interface, external version
1	3 109 35	CS141M SK Industrial network interface, internal version (slot)
1	3 109 38	<p>CS101 Network interface</p> <p>CS101</p> <p>Network interface internal version (slot) compatible with Daker DK, Daker DK Plus, Keor S, Keor LP, Keor Line RT, Keor T, Keor T Evo</p>

CS141 Characteristics



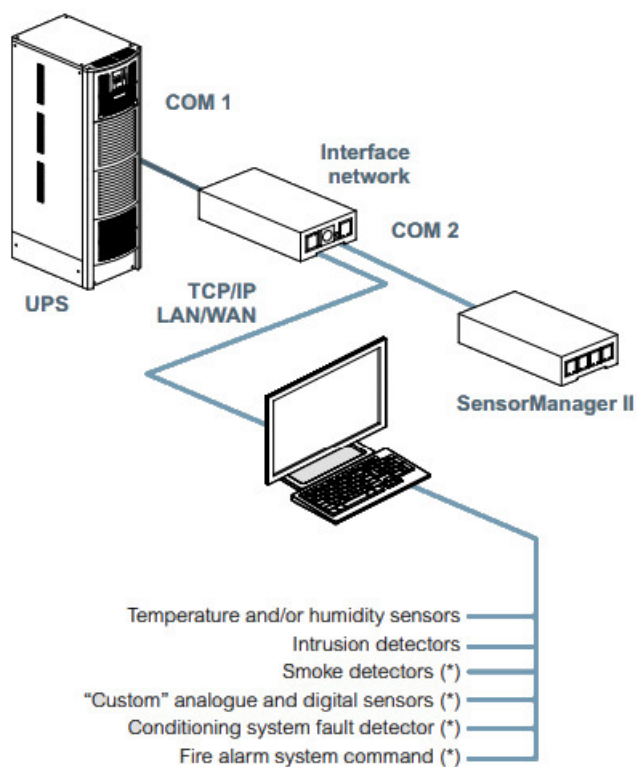
Model	A	B
CS141B	X	
CS141B SK	X	
CS141	X	X
CS141 SK	X	X
CS141M	X	X*
CS141M SK	X	X*

* Only Modbus over RS 485

Sensors and other accessories



Pack	Cat. Nos.	Sensors Description
1	3 108 97	<p>SM_T_COM</p> <p>Temperature sensor for direct connection to the COM2 port on the CS141 and CS141 SK interfaces.</p> <p>Cannot be used with Sensor Manager II.</p>
1	3 108 98	<p>SM_T_H_COM</p> <p>Combined temperature and humidity sensor for direct connection to the COM2 port on the CS141 and CS141 SK interfaces.</p> <p>Cannot be used with Sensor Manager II.</p>
1	3 108 99	<p>Sensor Manager II</p> <p>Manager for sensors: connects to the COM2 port on the CS141 and CS141 SK interfaces and manages up to 8 analogue inputs, 4 digital inputs and 4 digital outputs.</p> <p>The configuration is managed directly by the CS141 interfaces (PROFESSIONAL version), described previously.</p> <p>The “Scale Divisor” and “Off set” configuration functions enable Sensor Manager to be used with any analogue device (see characteristics).</p> <p>It includes 1 “SM_T” temperature sensor</p>
1	3 109 00	<p>SM_T</p> <p>Temperature sensor that can only be used with Sensor Manager II.</p> <p>It enables another “SM_T” sensor to be connected using a special connector.</p>
1	3 109 01	<p>SM_T_H</p> <p>Combined temperature and humidity sensor that can.</p> <p>Only compatible with Sensor Manager II.</p>
1	3 109 02	<p>Door sensor</p> <p>This consists of a reed switch and a magnet.</p> <p>Only compatible with Sensor Manager II.</p>
1	3 109 03	<p>SM_flash</p> <p>Flashing illuminated signal.</p> <p>Only compatible with Sensor Manager II.</p>



(*) Not supplied by Legrand

Sensor Manager II technical characteristics

Supply voltage (VDC)	9 — 24
Temperature (°C)	0 — 65
Non-condensing humidity (%)	10 — 80
Analogue inputs (V)	0 — 10
Digital inputs (V)	9 — 24
10 mA digital outputs (V)	9 — 24
Dimensions (WxDxH) (mm)	70 x 130 x 30

Sensor technical characteristics

	3 108 97	3 108 98	3 109 00	3 109 01
Temperature range °C	-25 to +100	-25 to +100	0 to +100	0 to +100
Relative humidity $\pm 5\%$ (%)		0 to 100		0 to 100
Connection cable included (m)	1.8	1.8	5	5
Dimensions H x W x D (mm)	27 x 70 x 70			

* Direct from the network interface

** Direct from Sensor Manager



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CS141 UPS Management Systems, CS141, UPS Management Systems, Management System
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